

## **Title: The Perfect Picnic**

### **Brief Overview:**

In cooperative learning groups, students will engage in a variety of activities. Students will collect, organize, display, and analyze data. The class will use information to make predictions and generate graphs and glyphs. Through the use of a real-life problem, students can apply data analysis and mathematical skills to understand the importance of its application.

### **Links to Standards:**

- **Mathematics as Problem Solving**  
Students will demonstrate their ability to solve mathematical problems through collection and interpretation of data.
- **Mathematics as Reasoning**  
Students will demonstrate their ability to reason mathematically. They will gather evidence and build arguments.
- **Mathematical Connections**  
Students will apply mathematical thinking and modeling to solve problems that arise in their daily lives. Students will connect mathematics to graphic arts and language arts activities.
- **Communication**  
Students will use oral, written, and graphic methods to convey their ideas. Students will interpret and evaluate their results through discussions and written responses, by working in cooperative groups to collect, compile, display, and share data, through discussions and written responses.
- **Statistics**  
Students will demonstrate their ability to collect, organize, display, and analyze data. Students will use appropriate displays such as line plots, bar graphs, glyphs, frequency table and pictographs.
- **Probability**  
Given a situation, students will apply basic probability concepts such as predicting frequency of outcomes.

### **Grade/Level:**

Grades 3-5

**Duration/length:**

Five one-hour math periods should be allocated for this lesson. Depending on the ability of the students, the unit may take longer.

**Prerequisite Knowledge:**

Students should have working knowledge of the following:

- Pictographs
- Bar Graphs
- Frequency Tables
- Glyphs

**Objectives:**

Students will:

- work cooperatively in groups.
- collect, organize, and display data using a pictograph.
- collect, organize, and display data using a frequency table.
- collect, organize, and display data using a bar graph.
- interpret data and determine its relevance and use.
- communicate data analysis through written response.
- interpret and describe information obtained from a glyph.
- use a glyph to represent personal preferences

**Materials/Resources/Printed Materials:**

- Bell
- Chart Paper
- Magic Marker
- Student Resources 1, 2, 3, 4, 5, 6
- Teacher Resources 1, 2, 3, 4
- Math Journals
- Clipboards
- Pencils
- Bag of Generic and Name Brand Potato Chips
- Loaf of Generic and Name Brand White Bread
- Jar of Generic and Name Brand Peanut Butter
- Jar of Generic and Name Brand Jelly
- Bottle of Generic and Name Brand Soda
- Container of Generic and Name Brand Pudding

- Cups (two different colors)
- Popsicle Sticks (for peanut butter, jelly, and pudding)
- Post it notes
- White Typing or Construction Paper
- Brown Grocery Bags
- Paper plates
- Overhead projector
- Transparencies

### **Development/Procedures:**

#### **TEACHER NOTES**

Generic Brands are considered to be off name brands. For example: Food Lion, Richfood, Metro, MSV, America's Choice, etc. Name Brands are considered to be first line manufactured products. For example: Jif, Welch's, Sunbeam, Coke, Hunt's, Lays, etc.

Be sure to have enough of each product to accommodate all students.  
Transparencies can be made from the resource sheets.

#### **Day 1:**

- The teacher will write the words "generic" and "name brand" on the board. The class will discuss the meaning of each word. Examples will be shown of each type of product that will be sampled. Similarities and differences between the terms generic and name brand will be recorded on a Venn Diagram.
- The class will be surveyed to determine their preference between name brand or generic products. This will be done by creating a class pictograph, where each student is given a Post-it note (with their name on it) to place under their preference. The pictograph will contain the following elements: key, title, symbols, and labels.
- Using the class pictograph, students will make their own pictographs. Each child will receive a blank sheet of paper. They can use the class pictograph as a model. The pictograph will contain the following elements: key, title, symbols, and labels. This will be scored using Teacher Resource 1 (Pictograph Rubric). Each child must also write four sentences that describe the pictograph. This will not be evaluated by a formal rubric, but be used as a tool for the teacher to work with those students individually who are having difficulty analyzing pictographs.

## Day 2:

- This activity requires some preplanning. The teacher will need to prepare six stations. Each station should be labeled one through six. The station should include two samples of a the product, one brand name and one generic. Label one product type with the letter "A" and the other product type with the letter "B". Do not let the identity of the type be known to the students. Be sure to record the correct identity of the types that have been labeled with an "A" or "B".
- The students will be equally divided into six cooperative learning groups. They will be given a clipboard, pencil, and a Consumer Survey Sheet (Student Resource 1). Each group will be sent to a station where they will sample Product A and Product B. They will record their letter preference on the Consumer Survey Sheet. Students will rotate to the next station at the sound of a bell.
- After completing all stations, the students will return to their seats and the class will organize the data. The teacher will start with station one and collect and record preferences on chart paper. This procedure should be continued for stations 2-6. This Class Product Preference Frequency Table (Student Resource Sheet 2) will be used as a data sheet for the students. **The teacher will collect and save the Consumer Survey Sheet for future use.**
- Students will record the class results on the Class Product Preference Frequency Table (Student Resource 2). **The teacher will collect and save the Frequency Table for use on day three.**
- As a homework assignment, students will interview the person who does the grocery shopping in their family. They will be required to list ten common items that are purchased and record the type of product it is, generic or brand name.

## Day 3:

- The teacher will review the terms generic and name brand. Students will report the results of their interview. The frequency tables made previously will be distributed and also reviewed.
- Students will choose one of the six products. Using the information from their Frequency Table, the student will make a bar graph of the results of that product on a blank sheet of paper. The bar graph must contain all necessary components. This will be evaluated by peers in a later activity.

- Students will be divided into cooperative learning groups. Students will display their bar graphs to the other members of their group. Each student should cover the name of the product in his/her title to determine if other members can identify which product they are displaying, using the data from the frequency table.
- Students will respond to the following writing prompt in their math journals: Was your product choice easy to identify from the information displayed on your bar graph? What positive or negative comments were made by the members of your group? What would you do differently next time? List three situations when a bar graph would be useful to describe data.

#### **Day 4:**

- Each student will be given a copy of Student Resource Sheet 3 (Generic/Name Brand Prediction Sheet). On this sheet, they will predict the identification of each letter, A or B, generic or name brand.
- The identity of each product will be revealed to the students. They will be given back Student Response Sheet 1 to write the name of their preference, either generic or name brand. Students will circle with a red crayon, the predictions that were found to be correct. The total number of correct and incorrect predictions will be determined and documented at the bottom of the sheet.
- A writing prompt will be displayed on the overhead projector. Each student will receive a copy of the vignette to review. They will be encouraged to use webs or other prewriting tools before writing their final draft.
- A rubric will be used in scoring (Teacher Resource 3).
- For homework, students will choose one of the six products and design a persuasive advertisement poster. This will be done on a brown grocery bag which will be distributed to the students. They will be given Student Resource Sheet 5 which gives prices and volume of each package. This information must be contained in the advertisement of their product. It must be colored using crayons, colored pencils or magic markers. Students must be prepared to defend the information given in their advertisement in a mini commercial form during day five's opening activity.

#### **Day 5:**

- The students will display their bags and give a speech on why their product is the better type to purchase. These mini commercials can even be video taped to review later.

- As a culminating activity, the teacher will redistribute the Consumer Survey Sheet. This will be used in conjunction with Student Resource 6 - My Perfect Picnic Glyph. Students will complete the glyph activity and it will be scored using a rubric (Teacher Resource 4). Students should turn in the Consumer Survey Sheet and the glyph in order to check for accuracy.
- The Perfect Picnic can occur in the room with the students enjoying the remainder of the sampling items from day 2.

### **Performance Assessment:**

- Group participation
- Informal teacher observation of students
- Pictograph with scoring rubric
- Writing Prompt with scoring rubric
- Glyph with scoring rubric
- Peer Evaluation

### **Extension/Follow Up:**

- Students will plan The Perfect Picnic. Using the Product Price List (Student Resource 4), students will determine the cost required to purchase the preferred products. Store coupons, vendor coupons, and sale advertisements may be utilized. Students will determine how to fund the picnic using the least amount of bills and coins.
- Students must determine the cost of the products per ounce.
- Students can write to the product manufacturers to report their findings.
- Students can compare nutritional value of the products.
- Connection to Health - Students can compare the products to examine nutritional content.

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## The Perfect Picnic / Student Resource 1

Name \_\_\_\_\_

### CONSUMER SURVEY SHEET

Place an "X" in the column to show your product preference.

PRODUCT	A	B
Soda		
Potato Chips		
White Bread		
Peanut Butter		
Jelly		
Pudding		

The Perfect Picnic / Student Resource 2

Name\_\_\_\_\_

CLASS PRODUCT PREFERENCE FREQUENCY TABLE

Using the class example of the frequency table, record the frequency of each choice.

PRODUCT	A	B
Soda		
Potato Chips		
White Bread		
Peanut Butter		
Jelly		
Pudding		



### The Perfect Picnic / Student Resource 3

Name\_\_\_\_\_

#### Generic / Name Brand Prediction Sheet

Read each product name. Predict each type of product, by placing the word(s), generic or name brand, below the corresponding column.

PRODUCT	A	B
Soda		
Potato Chips		
White Bread		
Peanut Butter		
Jelly		
Pudding		

After the identity of each type is revealed, circle those that you predicted correctly with a red crayon. Total your responses below.

Number of correct predictions \_\_\_\_\_

Number of incorrect predictions \_\_\_\_\_

## The Perfect Picnic / Student Resource 4

Name \_\_\_\_\_

## WRITING PROMPT

You are planning a class picnic. You want to serve the following menu to your guests: peanut butter and jelly sandwiches, potato chips, soda, and pudding. The choice between generic and name brand products are offered at your neighborhood store. Which type of products should you buy for the picnic? How will you choose the best type of product to purchase?

Remember you will need to buy the following:  
white bread, jelly, peanut butter, soda, potato chips, and pudding.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## The Perfect Picnic / Student Resource 5

Name \_\_\_\_\_

## PRODUCT PRICE LIST

PRODUCT	NAME BRAND	GENERIC
Soda	2 liters    \$0.79	2 liters    \$1.39
Potato Chips	6 ounces    \$1.09	6 ounces    \$0.89
White Bread	20 ounces    \$1.79	24 ounces    2/\$1.59
Peanut Butter	18 ounces    \$1.89	18 ounces    \$1.49
Jelly	18 ounces    \$1.59	18 ounces    \$0.99
Pudding	14 ounces    \$1.24	14 ounces    \$1.00

### Advertisement/Commercial Ideas

[illegible]

The Perfect Picnic / Student Resource 6

Name\_\_\_\_\_

MY PERFECT PICNIC  
GLYPH

Use the chart to create a glyph for your perfect picnic plate.

PRODUCT/FEATURE	NAME BRAND	GENERIC
Soda/Eyes	O	I
Potato Chips/Nose	V	U
White Bread/Mouth	W	M
Peanut Butter/Ears	X	S
Jelly/Hair	(	)
Pudding/Tie	=	#

The Perfect Picnic / Teacher Resource 1

Pictograph Rubric

2 OUTSTANDING	<ul style="list-style-type: none"><li>* Student included all the elements of a pictograph (key, title, symbols, labels).</li><li>* The value of the symbols was correct for both terms.</li><li>* The pictograph was neat and easy to read.</li><li>* Original symbols were used.</li></ul>
1 GOOD	<ul style="list-style-type: none"><li>* Student included some elements of a pictograph (2 or 3 of the required labels - key, title, symbols, labels).</li><li>* The value of the symbols was correct for 1 term.</li><li>* The pictograph was easy to read.</li></ul>

## The Perfect Picnic / Teacher Resource 2

Name \_\_\_\_\_

## WRITING PROMPT

You are planning a class picnic. You want to serve the following menu to your guests: peanut butter and jelly sandwiches, potato chips, soda, and pudding. The choice between generic and name brand products are offered at your neighborhood store. Which type of products should you buy for the picnic? How will you choose the best type of product to purchase?

Remember you will need to buy the following:  
white bread, jelly, peanut butter, soda, potato chips, and pudding.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

The Perfect Picnic / Teacher Resource 3

Writing Assessment Rubrics

SCORE	CRITERIA
4 OUTSTANDING	<ul style="list-style-type: none"><li>* Consistently used persuasive language to explain the items required for The Perfect Picnic.</li><li>* Used individual and class data to support ideas with supporting ideas.</li><li>* Used a variety of mathematical terms in complete sentences.</li></ul>
3 GOOD	<ul style="list-style-type: none"><li>* Used persuasive language to explain the items required for the Perfect Picnic.</li><li>* Used individual or class data with support ideas.</li><li>* Used mathematical terms in sentences.</li></ul>
2 FAIR	<ul style="list-style-type: none"><li>* Used little persuasive language to explain the items required for The Perfect Picnic.</li><li>* Used individual and class data without supporting ideas.</li><li>* Used few mathematical terms in sentences.</li></ul>
1 NEEDS IMPROVEMENT	<ul style="list-style-type: none"><li>* Used no persuasive language to explain the items required for The Perfect Picnic.</li><li>* Used no individual or class data.</li><li>* Used no mathematical terms in sentences.</li></ul>

THE PERFECT PICNIC / TEACHER RESOURCE 4

GLYPH CONSTRUCTION RUBRIC

4 OUTSTANDING	<ul style="list-style-type: none"><li>* All data is accurate.</li><li>* Correct symbols are used on all sections.</li><li>* Glyph is neat and readable.</li></ul>
3 GOOD	<ul style="list-style-type: none"><li>* Correct data score of 5 or 4.</li><li>* Correct symbol score of 5 or 4.</li><li>* Glyph is readable.</li></ul>
2 FAIR	<ul style="list-style-type: none"><li>* Correct data score of 3.</li><li>* Correct symbol score of 3.</li><li>* Glyph is sloppy and difficult to read.</li></ul>
1 NEEDS IMPROVEMENT	<ul style="list-style-type: none"><li>* Correct data score of 2, 1, or 0.</li><li>* Correct symbol score of 2, 1, or 0.</li><li>* Glyph is incomplete and unreadable.</li></ul>